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The Recognition of Glanders.

The subject of glanders in horses has recently been brought very prominently before the profession by the paper read before the Central Veterinary Society by Professor McFadyean. The paper carries our knowledge of the morbid anatomy of the disease a stage further than before its production, and the discussion affords evidence that mallein has passed the experimental stage and may be relied on as a diagnostic.

In the March number of the Journal of Comparative Pathology will be found an article on "The Pulmonary Lesions of Glanders" by Professor McFadyean, which should be read by every practitioner.

There is in it just one paragraph to which we take exception. It says: "At the present time the pulmonary lesions of glanders are invested with a special interest, for when a horse is killed solely because he has reacted to mallein, one must, *in most cases* judge of the accuracy of the diagnosis by the facts disclosed at the post-mortem examination, and if erroneous judgments are to be avoided we must start with clear notions as to what lesions are to be accepted as conclusive evidence of the existence of glanders. I have said *in most cases* because it must be admitted that, when in one out of perhaps fifty horses killed in consequence of their having reacted to mallein, the post-mortem examination does not bring to light any lesion whatever, the fact does not prove that this one horse was free from glanders, inasmuch as a post-mortem examination can hardly ever be so complete as to warrant the person who makes it in asserting that no lesion has escaped his notice."

This statement is most remarkable for its pathological caution. It amounts to this—an acknowledgment that in a fractional percentage of cases in which mallein reacts, no lesions of glanders are to be found on a most careful post-mortem examination; and a statement that this apparent freedom from disease is not to be accepted as proof of the non-existence of glanders. As a matter of abstract pathological science it may be granted that failure to find, on post-mortem examination, a specific lesion is not proof of the absence of disease, but in practice such subtlety is unworkable. If a post-mortem be made on a case diagnosed as pleuro-pneumonia or naviculararthritis we do not hesitate to say that absence of specific lesions is proof of the non-existence of the disease. No one would in these cases allow a doubt to interfere with his opinion, although upon his evidence might depend an action at law or the slaughter of a herd of cattle.

If a post-mortem examination carefully conducted by experts is insufficient to afford evidence upon which action should be taken we have arrived at the end of clinical medicine as an art. But this is not so, and the diagnosis of disease for all practical purposes is on a far safer footing when the symptoms during life and the post-mortem lesions are the basis of opinion, than if we are to rely solely upon the reaction of bacterial extracts. If mallein were infallible we might discard the post-mortem appearances presented by animals suspected of glanders, but so long as we know that mallein sometimes gives no reaction in evident cases of glanders, so long may we conclude that it occasionally reacts in cases which are not glandered. Until we know more, the only safe and fair course is to acknowledge glanders when we find specific lesions, and to acknowledge its absence when we fail to find them.

To adopt the course suggested by Prof. McFadyean's argument is to put an obstacle in the way of any extended use of mallein by the authorities. At present the horse-owner is protected against loss due to the errors of inspectors by a clause in the Glanders Order which gives the full value of a horse to the owner, if, on compulsory slaughter, the animal is found not to be glandered. Should such animal react to mallein, no post-mortem examination is reliable, and a law court might be required to settle every case in which no sign of glanders was found. Evidence would of course be forthcoming that although "the post-mortem examination does not bring to light any lesions whatever, the fact does not prove that this horse was free from glanders."

This point is of exceedingly great practical importance, for if mallein is to be used as fully as it ought to be, the authorities entrusted with the stamping out of glanders should encourage their inspectors to use this diagnostic agent, and horse-owners should have some definite standard by which disease or no disease is to be determined. Until now this standard has been the presence or absence of specific lesions in the carcase, and we presume that 99½ per cent. of veterinarians will still continue to trust only to such definite, if negative, evidence. Glanders, for stamping out purposes, should be treated by authorities as are other contagious diseases—as, for instance, is swine fever. On this disease Professor Brown, reporting to the Royal Agricultural Society at their last meeting, says: "103 suspected pigs were slaughtered and found *on post-mortem examination free from swine-fever.*" If the Board of Agriculture were critical they would say "the fact does not prove that these pigs were free from swine-fever,"—and they might be right.

TUBERCULOSIS.

Under the auspices of the Cheshire Farmers' Club, a lecture on "Tuberculosis; its dangers and extermination," was given by Mr. James Laithwood, F.R.C.V.S., Congleton, chief veterinary inspector to the Cheshire County Council. Mr. J. Cooke presided.

Mr. Laithwood said: I have been requested by your County Council to bring before you for consideration this afternoon a subject which is not only of the greatest possible importance to the stockowners of Great Britain (and especially to us in this great dairy county of Cheshire), but also, owing to the possibility of the transmission to the human subject, of vital importance to every individual in this country. The subject to which I allude is technically termed "Tuberculosis," but is perhaps better known in this district as "grapes," so called owing to the tuberculous masses generally resembling bunches of grapes. In other countries cattle which are suffering from this disease are known as wasters or piners. In the human being it is known as consumption, tuberculosis, phthisis, scrofula, tabes mesenterica, tubercular meningitis, &c. It most frequently attacks the lungs and lymphatic glands of cattle, but often also the intestines, liver, udder and brain—in fact any organ of the body may become affected. The disease was well known in France and Germany more than 100 years ago, but it was in 1865 that Villemin made the important discovery that tuberculosis could be experimentally transmitted by inoculation from one animal to another, and from man to animal. In 1868, the great French veterinarian, Chauveau, proved by experiment that the disease was also transmissable from man to animal by ingestion; and in 1882 the specific virus, the "bacillus tuberculosis," was isolated by Koch, was cultivated outside the body, and demonstrated to be the specific organism causing the disease, whether appearing in the lungs, lymphatic glands, intestines, or bones, and whether occurring in man or in animals. Since that date a great number of experiments have been conducted by the medical and veterinary professions in this and other countries, which have increased our knowledge of the disease to a very considerable extent.

Causes.

These are considered by some authorities to be the following: Hereditary tendency or predisposition, in-breeding, exposure to cold and wet, bad drainage, bad ventilation, excessive forcing for milk production, overcrowding, and many others, but I maintain that not one, not even all these, can produce the disease, and that the one and only cause is the introduction into the system of the micro-organism, the "bacillus tuberculosis," (also called Koch's bacillus from the name of the discoverer.) There are undoubtedly many predisposing causes, but they may be all included in a few words, viz.: Anything that has a debilitating effect, brings it below par, or lowers the vitality in any way, puts the animal in a more favourable condition for the growth of the microbe, and in that state it is more liable to take on the disease than when in robust health, and even apparently perfect health cannot lay claim to exemption. The "bacillus tuberculosis" is in the form of a slender rod. Its length is about half the size of a red-blood corpuscle. To give you some idea of its size, I may tell you that when the largest of them are placed end to end, it takes 7000 to measure an inch. It has been proved that the bacillus flourishes best at a temperature between 98 and 100 deg. F., just below the normal temperature of cattle. Its growth ceases when the temperature falls below 86deg. F. It may exist and retain its vitality outside the animal body, but does not multiply, and loses its virulence in less than six months unless kept at a favourable temperature. It dies in a few hours in direct sunlight, in six days in diffused daylight, and in a solution of mercuric chloride of the strength of 1 in 1000, or in a 5 per cent. solution of carbolic acid, in 24 hours.

Modes of Infection.

Hereditary transmission, inhalation, ingestion, and inoculation. I know it is the general opinion among most men, and with medical authorities especially, with regard to the human subject, that hereditary taint is, perhaps, the greatest source of the disease; but, judging from the comparative rarity with which we find it in calves, and the percentage from statistics taken being only one in 70,000 born tuberculous, I am persuaded that, in cattle at any rate, this mode of infection has been over estimated. Hereditary transmission does, undoubtedly, occur, and it is generally supposed to be most frequent through the male. In that case, one or both testicles will be affected, and the bacilli transmitted with the semen—then the greater portion of the progeny are likely to become affected. But, to my mind, it is doubtful whether the introduction of bacilli into ova so infinitesimally small could take place without injury to the ova, or, at least, causing some peculiar inherent qualities in the fœtus. If the ovary of the cow becomes diseased, it often gives rise to nymphomania, or causes the animal to become what is termed a "buller," and barrenness results. Although it is common enough to see the progeny of tuberculous mothers become diseased, yet I firmly believe that by far the greatest portion become so after birth, either from consumption of the infected milk or from continual association with the diseased parent. The progeny of a diseased mother is likely to be a weakly one, and, for that reason, more liable to become affected if in contact with contagion than if strong and healthy. With regard to inhalation. As we find the lungs most frequently affected, it is probable that this is the most frequent mode of infection in adult cattle. It has been proved that the inhalation of dust made from dried expectoration will cause the disease, and I feel certain that the greatest number become tuberculous from co-habitation with affected animals and the inhalation of infected dust, and the closer these are kept without ventilation the more rapidly do the healthy ones become diseased, and thus we find in town cowhouses, where the animals are kept in a most crowded condition, the greatest number of tuberculous cattle. The infective organisms are not, as is frequently supposed, transmitted in the expired air in suspension, but are contained in the bronchial mucus and expectoration projected through the mouth and nose in the act of coughing. In its moist condition this is not dangerous to the respiratory organs, but when it becomes dry and is rubbed off from the walls, wood-work or trough, and as dust gains entrance to the lungs in the inspired air it is undoubtedly an exceedingly frequent cause of the disease. Ingestion of, or, in other words, feeding upon tuberculous matter experimentally, seldom fails to cause infection, and it is often transmitted by healthy animals eating from the same trough that a diseased one has been or is using. I have known four animals in succession become tuberculous from successively occupying the same stall, and I saw one only last week that was affected standing in a stall from which a graped one was removed last summer, although the stall was empty for three months, but was not disinfected. The expectoration is often coughed up and lodged on the food, and as cattle are particularly fond of robbing their neighbour's mangers, infection by this means often results. In young animals the ingestion of the milk of the tuberculous mother is undoubtedly the chief source of danger. It has been proved by experiment to cause the disease in calves, pigs, fowls, and other animals fed with it, and this brings me, gentlemen, to one of the

most important items in this paper, viz., the transmission of this terrible disease to the human subject. It is now considered little short of a certainty that milk from tuberculous cattle is answerable for a large share of consumption in human beings, particularly these forms called tabes mesenterica (commonly known as consumption of bowels), or tubercular meningitis (or consumption of the brain) in children. It is estimated that of all children dying under 10 years of age over one half die of tuberculosis, and from 14 to 15 per cent. of deaths at all ages are due to this disease. Inoculation of infective matter rarely fails to cause the disease, and occasionally the generative organs of either sex may serve as the port of entrance to the bacilli. When we consider the order of respective liability to the disease in the different animals in the following order, viz. :—Man, cattle, fowls, hares and rabbits, pigs, horses, goats, dogs and cats, and know that the disease can be communicated to all the last-mentioned animals by feeding them with tuberculous milk, it would be but little short of madness to suppose that the human being, who is the most susceptible of all, should not suffer likewise when fed with diseased milk. It is proved that tuberculous milk contains the bacilli in large quantities, and Galtier has found that cream, butter milk, butter, cheese, and whey have the same infectivity. The udder may be affected and the milk contain enormous numbers of bacilli without the animal showing any external signs of disease.

Symptoms.

Frequently the first symptom noticeable is that the animal appears to be losing flesh without any apparent cause, or a slight cough may precede this. The cough is characteristic of the disease; it is generally single, short, weak, and hoarse, with protrusion of the tongue. As the disease progresses the various glands of the body become affected ; the submaxillary, the salivary glands below the ear, the cervical glands in the neck, the lymphatic glands in front of the shoulder blade and above the stifle, and the external inguinal glands inside the thighs, are all liable to become knotted and enlarged, but very rarely suppurate. Often the appetite is capricious, the coat becomes hard to the touch, and the hair frequently stands erect. On percussion of the chest wall pain is evident, often with a slight grunt, and the sound emitted is dull. Spinal tenderness is also shown on pressure. On auscultation the respiratory murmur is inaudible, and a more or less leathery or rasping sound is heard, and in patches often complete dulness. The milk may not for some time be any less in quantity, but poor in quality, bluish in colour, has an unpleasant odour, and makes but little cheese or butter. In some cases we find in one or more quarters of the udder a hard knotted condition, devoid of natural sensitiveness, normal in temperature, and non secretive; in others a uniform enlargement, with a decreased secretion of milk. If the abdominal organs become affected we have occasional diarrhœa, with sometimes acute dysentery ; in females frequent and sometimes continuous œstrum. As the disease progresses all the above symptoms are augmented in degree, the pulse becomes weaker, the cough more frequent and accompanied by a rusty muco-purulent expectorate. The mucous membranes become pale in colour, the hide becomes fast on the body, and the cough more frequent and painful. As emaciation increases the thighs waste, showing a deep cavity between them above the udder. The respirations become more troubled and frequent, even slight exertion causing much distress. The heart sounds become obscured, owing to deposits surrounding it. The milk decreases in both quantity and quality, the appetite fails, there are often dropsical effusions under the throat and dewlap, and the abdomen becomes pendulous, eyes sunken and brilliant, pulse becomes more feeble and frequent, and the pole-axe brings a happy release to the suffering animals. The symptoms will differ considerably in different animals, according to the parts most affected, but more or less of the beforementioned will generally be found. There are undoubtedly more cases of recovery than is generally supposed, for it is not at all a rare thing to find in the slaughterhouse a small localised patch of lung having undergone calcification. In these cases the bacilli have from some cause died, and nature has performed its own cure. In these cases only I believe the flesh to be fit for human food.

Should the Flesh of Tuberculous Animals be used for Human Food?

On this point there are yet, I am sorry to say, differences of opinion. Many maintain that, when the disease is localised to one small area, and this is cut away, the remainder of the animal may be eaten with impunity. Others think that, even if the bacilli are present in the flesh, if well cooked they will be destroyed, and no harm will result if the tubercles are removed, while some consider it a sin to destroy so much food, which they think ought to be sold at a low price to the poor. I cannot agree, gentlemen, with any one of the above opinions, and consider the risk far too great, for the following reasons :—1. The disease is undoubtedly the same in man and animals, and due to the same microbe. 2. Man is the most susceptible to the disease of all animals. 3. Animals much less susceptible to the disease than man become affected by eating the flesh of diseased animals. 4. The deadly virus, the tuberculous bacilli, are found in the blood stream, and lymphatics and hence are conveyed to all parts of the body. 5. Considerable disease and swarms of bacilli have frequently been found in the marrow of bones, and it is therefore impossible to remove all diseased parts when they cannot be seen. 6. The flesh has been proved by experiment to be infective; of 35 animals fed on raw flesh 22 per cent. became affected. In another experiment of 46 fed in the same manner 13 per cent. suffered. Pigs similarly fed for 10 days all became diseased (Peuch). Rabbits became affected from juice of muscles from a cow in very good condition, and muscle has been found visibly diseased by Sir C. Cameron, McCall, and others. Ordinary cooking is insufficient to destroy infectivity; the juice from roasted pork was still able to infect rabbits. Tubercular flesh after being in boiling water for 15 minutes still infected 35 per cent. in 62 experiments. Tubercular juice heated to 198 degrees F., infected one animal in six. In cooking meat the albumen coagulates at 162 deg. F., and if the red juice oozes out when carving the albumen is not coagulated, which shows that the temperature has not been sufficient to kill the bacilli. Kastner caused the disease in nine out of 11 cases with injection of muscle juice. Professor Galtier has also produced the disease with the juice of muscle. Professor McFadyean says : "Every animal having localised tuberculosis is exposed to the risk of generalisation by the bacilli gaining access to the blood stream, and it is never possible to state with certainty that such a condition is not already in existence." He also asserts that he has frequently seen butchers when dressing carcases wipe their knives across the flesh after using them for removing tubercular lesions. I maintain that if flesh from graped animals must be sold for human food, let it be labelled as such, and see who will buy it. The public have a perfect right to be protected from deception in flesh meat just as much as in butter or any other commodity, and when they go to the shop to buy beef they ought to get beef and not beef *plus* a deadly virus. There are many good men who are in doubt whether there is a risk in the consumption of tuberculous meat or not, but I contend that even they ought to give the human life and not the microbe the benefit of the doubt. When

we lost 35,000 souls in the Crimean War was it not considered to be a great national calamity? And yet we serenely allow this terrible foe to take from us every year four times that number, and do next to nothing to stem the march of the enemy. I am quite of opinion that the quantity of bacilli in the muscles of the affected animals may not be large, that cooking the flesh undoubtedly destroys some of them, and that even though a few may remain, it is probable that the flesh may be eaten with impunity by the whole population of this country, if every one of them were in perfect and robust health. But what of those who are not so; are there not thousands of them; how many just recovering from some severe illness; how many debilitated from insufficient food and clothing; how many from numberless causes whose vitality has been brought below the powers of resistance to this deadly foe? There are thousands of these weakly ones always with us, and, as I have already told you, this is just the condition which is most favourable for the growth of the microbe. This organism, like every other parasite, either animal or vegetable, thrives best on and glories in the weakness of its host; and are we going to continue to allow this almost infinitesimal foe to have its own way, and to pick out from among us its yearly number of victims to the extent of 150,000 human lives? I earnestly hope, and honestly think we shall not, and I unhesitatingly affirm that not one ounce of flesh from any tuberculous animal, whether it be from cattle, horses, pigs, sheep, fowls, or rabbits, ought to be permitted to be used for human food, nor yet even for the food of animals.

The Milk.

The milk of tuberculous animals is still more infected and still more dangerous than the meat (especially when the udder is affected) owing to its being generally used in its uncooked state. Professor Macqueen says: "No one can gauge the amount of mischief done through the use of milk that is too often loaded with the germ of tuberculosis." Professor Arloing says that the danger is so great to children that it can scarcely be exaggerated. Over 2000 tuberculous children under two years of age die annually in Paris alone, and it is probable that more than half of these are due to the consumption of tuberculous milk. Professor Delepime reports a case of a child, four months old, without any hereditary predisposition, dying from tuberculosis of the mesenteric glands. It had been fed with milk from a cow kept specially for the purpose, which when killed was markedly tuberculous and bacilli were found in the udder. Dr. Sims Woodhead says "Mesenteric or abdominal tubercles are far the most frequent in children." Professor McFadyean and Dr. Woodhead found that tubercle of the intestine was present in 43 cases out of 127 analysed, and that the tubercle of the mesenteric glands was present in 79 per cent. of cases, and more than half of these were found in children between the age of one and five years, during the period after they were weaned, when cows' milk would be taken in the greatest quantity. From a series of inoculations with milk from tuberculous udders over 70 per cent. had become affected. Hirschberger finds that the bacilli are found in the milk in 33 per cent. of tuberculous cattle, and Ernst inoculated with milk from cows without udder affection and caused the disease in 37 per cent. of cases. The bacillus has been found to retain its vitality for ten days in milk, 14 days in whey and cheese, and 30 days in butter. Dr. Ferro, of Turin, has found 10 per cent. of different samples of foreign butter to contain the microbe and infect guinea pigs fed with it. There are numbers of cases to prove the dangerous power of infected milk, which is recognised by the most reliable authorities to be the chief source of tubercle in children in the form of tabes mesenterica and tubercular meningitis. All the great authorities are agreed on this point, that the question of the consumption of tuberculous milk is one of the greatest possible importance to the children of this country; and I am sure you will agree with me that it is the bounden duty of every one of us to do our utmost to protect these innocent and helpless ones who are incapable of doing anything themselves against this deadly enemy. A striking instance of infection in a family is related by Mr. Tedbar Hopkin, in which all the females who drank milk became tubercular, while the male members of the family, whose favourite beverage was whisky, remain healthy to this day. The only safeguard now practised against affected milk is to see that it is well boiled for not less than five minutes. There is also less risk in using the mixed milk from a large number of cows than from one single animal. If that one cow should be tubercular, it is almost a certainty that a child continually fed from it must become affected. Then, let us not, gentlemen, shirk our responsibility in the matter, but, like men, look straight at this great danger, and be not satisfied until we have removed every possibility of infection from our milk supply, and thereby effectually clear away that element of doubt that now hangs over our best, cheapest, and most perfect of all foods. There is nothing that contains every element of nutrition in its proper quantities to nourish the body except pure milk; all other foods have either some element wanting or something in excess, and if the working population could be persuaded to use pure, nutritious milk instead of so much tea (which does not contain one atom of nourishment), it would add much to the strength of the future generation of this country.

Prevention.

There ought to be a far more strict system of inspection of both meat and milk than now exists, and although the advice to boil the milk and well cook the food is good to some extent, it is in my opinion beginning at the wrong end, and does not remove the root of the danger. I cannot see why we should allow our children and the weakly and delicate ones of our population, whose chief food is milk, and with whom the greatest liability exists, to consume even milk *plus* boiled microbes, or beef with roasted bacilli, when we can prevent the possibility of either. Professor McFadyean says "it is as yet an incurable disease but an eminently preventible one, and its present alarming prevalence is the natural result of the almost universal neglect of those measures that are indicated in the case of every infectious disease. It is the province of the veterinary profession to diffuse among stock owners a knowledge of the true nature of the disease and to point out what are the rational means of prevention. Under the present method this matter is in a most unsatisfactory condition, and so long as private slaughter houses remain there is little hope of any improvement, and the public cannot possibly be efficiently protected from the risk of eating tuberculous or any other injurious flesh until the three following regulations become law:—(1) Butcher's meat must not be offered for sale until after having been recognised wholesome by a system of veterinary inspection; (2) Public abattoirs should exist in or near to every town, and no animal that is for public sale should be slaughtered in any other place; (3) Inspection of animals should be carried out before and after slaughter, the whole of the viscera particularly examined, and all foreign meat examined before introduction into the town, by the veterinary inspector. These regulations were passed by a large majority at the last great International Congress held in Paris, and when this is carried out in every town in this country (and I trust that time is not far distant), the inspection of meat will be in a more satisfactory condition. Butchers are at present in a most awkward and unfair position. A man may buy a grand looking animal with every external appearance of

perfect health, and with all good faith give a good price for it, but when opened it may be found to be more or less tuberculous. The meat inspector comes round before the tuberculous portions have been cut away, and oftentimes afterwards. The carcase is condemned and destroyed, and the butcher (or the farmer) has to bear the whole loss of the beast, as the carcase is destroyed for the public welfare. I maintain that the public funds should provide compensation to the butcher or farmer in all such cases. It would then cause butchers to report when diseased carcases were found. I have already given you my opinion and my reasons for arriving at the conclusion that no portion of a tuberculous animal should be allowed to be exposed for sale for consumption neither for man nor animals. I am supported in this view by our eminent medical officer of health, Dr. Vacher, who says "How can the meat of an infected animal be eaten with safety?" Professor Walley says "All flesh and offal of infected animals should be destroyed by fire or otherwise. At the International Paris Congress, in 1888, the resolution was passed by a large majority in favour of the total seizure and destruction of all flesh derived from tubercular animals, whatever the extent of the lesion found in them. The departmental committee have passed a similar resolution, and at the International Congress in 1889 this resolution was adopted." There is good reason to prevent the consumption by man or animals of the flesh of tubercular animals, mammals, or birds, whatever the degree of tuberculosis, or whatever the apparent quality of the flesh. The committee also gave evidence in support of the view that where tuberculosis was most prevalent among cattle, it was also most frequent among the human population, and is also most prevalent in those towns where the numbers of low-class butchers are the greatest (it is also found that in those countries where no cattle are kept, that there, tuberculosis is unknown in the human being), and there is little doubt in my mind that if infection could be prevented, it would soon be little known in this country also. The importance of these resolutions, resulting after a long and careful consideration of the opinions of the best men from each country, cannot be denied or over-estimated. The last and most important question is its extermination. This is easier said than done, but that it can be immensely lessened so far as cattle are concerned, there is no doubt in my mind. The first thing to be done is to include tuberculosis in the Contagious Diseases (Animals) Act, as it ought to have been years ago. Then we must have slaughter of all diseased animals, and compensation given to the owner. The principle has already been conceded. If slaughter and compensation is equitable from a public point of view for pleuro-pneumonia, from which disease there is not the slightest danger to public health, surely it must be more so for tuberculosis, which has for its victims annually in this country more cattle than pleuro-pneumonia had when at its highest, to say nothing of the loss of 150,000 human souls. When this question was brought before the House of Commons in 1890, the President of the Board of Agriculture said "There could be no question as to the importance of the subject." But pleuro pneumonia was then occupying their attention and there was also mentioned some difficulty in the diagnosis of the disease in its early stages; these are now removed altogether. Pleuro-pneumonia is exterminated from the country, and the diagnosis of tuberculosis is now rendered a comparative certainty by the inoculation of a prepared fluid called tuberculin. All the latest investigations with regard to this question have been most positive, and Professor McFadyean, the principal of the London Veterinary College, who is the greatest authority on this question in this country, says that he feels every confidence in recommending it as the most valuable agent in discovering tuberculosis among cattle. The procedure is as follows. The temperature of the animal should be taken night and morning for the two preceding days, and the average noted. The injection is usually made just behind the shoulder. Immediately before injection the temperature is again taken; then carefully disinfect the syringe and needle as well as the injection area of the skin with a 5 per cent. solution of pure carbolic acid. The tuberculin is then injected underneath the skin. Afterwards the temperature is taken every two or three hours from the 8th to the 20th hour; the highest is generally reached between the 10th and 16th hours. If the temperature rises 2 degrees F. or more above the average ascertained before injection, the animal may be considered tuberculous. The test should not be applied if the previous temperature is very irregular from any cause such as oestrum, parturition, or any ailment. On taking the whole statistics recorded during the last twelve months at various places and by various operators, there have been 503 animals injected with tuberculin; of these 189 shewed a rise of temperature of 2 degrees F. or more, and were therefore declared tuberculous, and on slaughter 199 were found diseased. It sometimes happens that a cow, if very far advanced with the disease, does not shew a rise of temperature, but this is of no consequence, as with such the test is not required. In only a very few cases no disease has been found when the temperature has risen, and then it may have been due to some other cause, or the disease may have been so light as to escape notice. Professor Nocard has made experiments and found that tuberculin does not alter the quantity or quality of the milk, and does not interfere in the least with the course of pregnancy This then is a most valuable aid in discovering those animals which are tuberculous long before any external symptoms appear. On removal of diseased animals all walls, woodwork, troughs, and floors should be well washed, scraped, and cleansed and then dressed with a five per cent. solution of carbolic acid, or one in 1000 solution of corrosive sublimate. Care should be taken to remove all in a damp state, for if dust be allowed to rise, the bacilli in the dried sputum might infect the lungs of other cattle and also human beings. Cleanliness and periodic disinfection of all walls, floors, and woodwork should be more strictly carried out. There should be adequate ventilation of all cow-houses and other cattle buildings, and by every means let in as much sunshine as possible. Sunshine is the greatest and cheapest of all purifiers; and never forget that it kills this bacillus, and many others, in a few hours, while darkness, dirt, bad ventilation, and bad drainage is the palace of all microbes. Systematic inspection of stock, with a view to detect the disease in its early stages (when it is very slightly, if not all, contagious), is of the greatest importance, and the bulls, at any rate, in every stock, should be tested with tuberculin every spring. A special fund should be set aside by Government for the payment of compensation on slaughtered animals, not half or three-quarter, but the full value of what the animal is worth to the owner for milk production or otherwise. Nothing less than full value will work, as many will keep them on as long as they give a fair quantity of milk, and thereby the infection will be continued unless the full value be paid. This fund might be formed and maintained by charging a sum sufficient for the purpose not only on cattle, but on every animal that is imported into this country (except from our own dominions). From this fund should be paid compensation in full, not only for tuberculosis, but for all animals slaughtered under every contagious disease that is scheduled under the Act of 1887. Dr. Burden-Sanderson says "there is no disease, acute or chronic, which is so destructive to human life and so productive of human suffering." Money considerations must not be allowed to stand in the way where human life and death are at stake, and if tubercu-

lar milk and flesh are fraught with danger to human life it must be stopped at all costs; and this country would have nothing to lose, and everything to gain, by providing the compensatory fund from the source mentioned. By avoiding the infection from fowls and other animals as well as man, by the use of tuberculin, the slaughter of and compensation for all animals affected, and by a strict carrying out of the above antiseptic and hygienic conditions, I venture to predict that tuberculosis would in a very few years be, among cattle, a very rare disease, and thereby remove not only a source of great loss to the stockowners of this country, but also banish from among us such a source of danger to the young and weakly ones of our population as it is impossible to calculate.—*The Chester Courant.*

VETERINARY SOCIETIES

BORDER COUNTIES VETERINARY MEDICAL SOCIETY.

A general meeting was held at the Bush Hotel, Carlisle, on Friday, April 5th. Mr. Croudace, of Haltwhistle, took the chair at the opening of the meeting, on the motion of Mr. J. Armstrong, Penrith. There were also present: Mr. J. C. Soulsby, president, who was installed to the chair at a subsequent stage of the proceedings: Professor Bradley, of the New Veterinary College, Edinburgh; Mr. Carlisle, Carlisle; Mr. H. Thompson, Aspatria, (hon. treas.); Mr. Little, and Mr. Little, junr., Abbey Town; Mr. McKie, Carlisle; Mr. Anderson, Mr. Ward, Mr. J. G. Bell, Mr. Lindsay, Mr. Hewson, (hon. sec.); Mr. Henderson and Mr. Wilson, visitors.

The minutes of the last meeting having been read and confirmed, Mr. Croudace vacated the chair in favour of Mr. Soulsby, the new President.

The Late Mr. H. Pears.

Mr. H. Thompson moved that a vote of condolence be sent to the widow of the late Mr. Henry Pears, whose sudden death took place a fortnight ago. Mr. Pears was a gentlemen whom he had known for a long time, having been at college together. He was a very retiring man, and had lived close to them at Langholm and also at Longtown, and was one of the earliest members of the Society, in which he took a great interest, though the state of his health prevented him being a frequent attender at their meetings.

Mr. Little seconded the motion.

Mr. Armstrong (the retiring secretary) said he had known Mr. Pears intimately, and had had a deal of correspondence with him, and he would like to endorse what had been said by Mr. Thompson, and would like to ask the sufferance of the Society for a step he had already taken in the matter. He had already drawn up and had printed a letter of condolence, which he now placed before them for approval, being confident that his action would meet with an unanimous vote. (Applause).

The motion was carried unanimously.

The Late Professor Walley.

Mr. Armstrong read a letter from Mrs. Walley, thanking the Society for the vote of condolence, forwarded to her on the death of her husband. Mrs. Walley wrote:—"Please accept the united thanks of my family and myself for your kind letter sympathising with us in the sad loss we have suffered. No man in the Veterinary profession had its interests more at heart than my late husband. I am sure his friends will miss him. Our loss is irreparable. We greatly value the many kind letters from so large a number of the veterinary profession."

The Employment of Laymen in the Veterinary Department of the Board of Agriculture.

The Secretary read a circular letter from the Secretary of the Central V.M.S., and a copy of a letter enclosed, from the Central Society to the President and Council R.C.V.S. (These have been published previously).

Mr. Thompson said he attended the Council meeting in London this week, a circular report had been drawn up by a sub-committee, and it was agreed that each veterinary medical society throughout England, Scotland and Ireland should have twenty or thirty copies to send to Members of Parliament on this matter. He saw that a question was asked in the House of Commons, on Friday night, and Mr. Gardner replied that there was no veterinary department now at the Board of Agriculture—it had been changed to that of the Animals Department; and he said that on the retirement of the late director of the Veterinary Department in December, 1893, he found it necessary to redistribute the business performed by the principal officers of that department so as to enable scientific officers to devote themselves exclusively to work for which professional veterinary knowledge is requisite, and to place the business of an executive and non-professional character in the hands of the officer best qualified to perform it. The new organisation had been in full operation for 15 months past. Therefore (said Mr. Thompson) it seemed to be a "gone coon." (Laughter). He did not think this Society need stir any more at present. The matter was before the Council on Wednesday, the circular was in print, and he expected there would be a committee appointed shortly to interview Mr. Gardner, the Minister of Agriculture.

The Institute of Preventive Medicine.

The Secretary read the following letter:—

Royal College of Veterinary Surgeons,
10 Red Lion Square, W.C.
October, 1894.

Dear Sir,

I am desired by the President to say that the subject of a grant of money to the British Institute of Preventive Medicine will come before the Council of the Royal College of Veterinary Surgeons at their next meeting, and that should your Society desire to subscribe, it would guide the Council in their deliberations if they knew the sums which might be expected from each Society as supplementing the grant of the College.

I am, yours very faithfully,
J. Armstrong, Esq. A. W. Hill, *Secretary.*

The Treasurer intimated that the Society had no more funds than was necessary to meet expenses, and he did not see how they were to contribute anything to this Institute, unless each individual member would send a donation.

Mr. Armstrong said the Institute had not honoured the veterinary profession as might have been. It was agreed that Mr. Hill be informed that the funds of the Society would not allow of a subscription to the Institute.

Other Letters.

The Secretary intimated the receipt of several letters of apology for absence from the meeting. Mr. Donald, Wigton, wrote drawing attention to sundry matters concerning the report and publication of the Society's proceedings; and to this Mr. Armstrong and Mr. Thompson replied. Mr. Tucker, Brampton, resigned his membership, on leaving for Monmouth.

PRESIDENTIAL ADDRESS.

By J. C. SOULSBY, M.R.C.V.S.

Gentlemen,—I thank you for the honour you have conferred upon me in electing me as president of this Society for the coming year, and trust with the help of all the members we will have a very successful year.

A letter was read at our last meeting from one of the members suggesting that this Society be closed, owing to non-attendance and luke-warmness of members. I am sorry to have to say that I have been very remiss in my attendance at the meetings during the last four or five years, but circumstances over which I had not control were the cause of my absence.

I think it would be a great pity were we to close this society. In all societies like this you will find there are times of depression and inactivity on the part of members, but, as a rule, those times pass over, and I would advise that we hold together as a society, try and get more gentlemen to join us, stir up the old members, and trust for a better time coming.

These veterinary medical societies in my opinion have been the means of bringing the profession to the status in society it now enjoys, by free interchange of thought among the members. They have also heightened the standard of professional etiquette, to my way of thinking a most important thing

You will all agree with me, gentlemen, that it would be anything but good taste were I to take up your time with a prolonged address when Professor Bradley has kindly come from Edinburgh to deliver us a lecture, but there are one or two subjects I would like to bring before you.

First, the education of the veterinary surgeon. A very few years ago a man could enter any of the Colleges if he had a very slight smattering of education. Now, I am glad to say he must pass an examination equal to that of the medical profession or the law. This, to my mind, was a most important reform, seeing that now-a-days a veterinary surgeon, when called in to a case, generally consults with the master, not with the groom as in past times. And what with School Boards, technical instruction classes, etc. the rising generation of farmers are a much better educated class of men than were their fathers. Therefore the veterinary surgeon of the future, to be a successful man, must be well educated.

With regard to the four years course of study, I think it would have been more advisable to have reversed the order of things, and compelled a man to undergo two years pupilage before entering College. There are many gentlemen turned out of the Colleges fully qualified as regards diploma, who simply know nothing of practice *as seen in the country*. For instance, if a newly qualified man was called in to treat a case of influenza of a fortnight's duration, the animal having had administered to it a dose of physic, then drenched with all manner of medicaments, or cases similar to this that we all come across almost daily, I doubt that gentleman, had he gained all his knowledge at College, would be at his wit's end how to proceed. Pupilage not being compulsory, I am quite in favour of the four years course of instruction, with a searching practical examination at the finish.

The progress that veterinary science has made during the last decade has been very great. With the aids to diagnosis at present known and those which will no doubt at no distant date be discovered, the veterinary surgeon's power of observation will not be taxed so much as it has been in the past. Mallein and tuberculin, agents the value of which as aids to diagnosis we have hardly had time to appreciate, point to what we are coming to. During the last two months I have had an outbreak of glanders in my practice, and through the kindness of Professor McFadyean, I have had an opportunity of testing mallein with satisfactory results. And with such an agent as tuberculin, should the government adopt proper measures, that scourge of the farmers, tuberculosis, will be in time eradicated.

There has been great excitement among us as veterinary surgeons lately owing to the action the Board of Agriculture has taken in appointing a layman to succeed Professor Brown as chief of the Veterinary Department. You will all have seen the letters and discussions on the subject in the different journals and some of the newspapers. I have nothing further to say in protest than what has already been said on such an insult to the profession, only this: from my way of reading between the lines, the late Director of the Board may have had some say in the arrangements at present existing, as he is still retained as consultant, and as far as I can make out he has never protested against the appointments as they now stand.

Mr. THOMPSON said, with reference to tuberculin, he had lately two cases which he had condemned as tuberculosis, and when in London about Christmas, Professor McFadyean gave him some tuberculin. The reaction was splendid. The temperature in one case went up from 101.1 to 106.3, and in the other from 101.3 to 105.3. He had not the least hesitation in saying, before the test was applied, that they were tuberculous cases, He tested them a second time, and this time he also tried it on a healthy animal. There was no reaction whatever in the healthy cow, but in the other cases the temperature again went up though not so high as before. But the strangest thing was that these two cows as soon as they were inoculated with tuberculin took to laying on flesh, and both did well. One was sold the other day and made £16 10s., he was much grieved that she went out of his district and he had no chance of seeing her opened. Whether tuberculin had any effect in making her lay on fat he could not say.

Mr. ARMSTRONG said he could bear out Mr. Thompson with regard to tuberculin. About a year ago this matter cropped up in regard to a cow. He quite believed that although she was in an advanced stage of tuberculosis when slaughtered, had she been followed up with tuberculin she would have made herself a good fat cow. She improved every day so long as the use of tuberculin was continued, but it was rather dear at that time, and the owner of the cow felt the grip of his pocket a bit, and they did not carry the experiment to the end. He was sorry he had missed hearing the President's remarks as to mallein.

The PRESIDENT mentioned a suspicious case of glanders in which he injected mallein under the skin, about half way down the neck. That was about nine o'clock in the morning. In the evening he found that the temperature had risen from 102 2/5ths. to 105 2/5ths., and the local swelling in the neck was about the size of a small saucer, and became more diffused during the night. The temperature kept up until the following morning, then gradually became lower, and the swelling became still more diffused, until eventually it spread out and left no mark at all; but the reaction was very good. He was quite of opinion that mallein would detect any case of glanders if it was present.

Mr. ARMSTRONG: Did you have any experience in inoculating an animal quite free from glanders?

The PRESIDENT: I did not. The farmer was dubious about letting me inoculate a healthy animal. (Laughter.)

On the motion of Mr. Armstrong seconded by Mr. Ward, a vote of thanks was passed to the President for his address.

The President announced that during the year he would give a lecture on "The Digestive Organs of Cattle."

PATHOGENIC BACTERIA.

By Prof. Bradley, New Vety. Col., Edinboro'

(The address was well illustrated with micro-photographs thrown on the screen with limelight.)

Professor Bradley observed that bacteriology had made such strides of late years that it was necessary that all veterinary surgeons should possess a knowledge of the life-history of these minute organisms, in order to adequately cope with an outbreak of contagious disease. It was often remarked that a great deal of imagination had to be brought into play in connection with bacteriology, but the images he now showed by the lantern were from photographs of the actual bacteria, and the negatives had not been retouched. The most common surgical case a veterinary surgeon had to deal with was a wound of a suppurating type. He exhibited slide of organisms almost always found in pus. Numerous different germs were described, but the most common one was that he now exhibited the staphylococcus pyogenes aurens.

It was known by this name from its mode of growing in little clumps, and because, as a rule, the pus in which it was found was of a golden colour. The question arises whether suppuration can take place without the presence of germs. One is not in a position to assert definitely either one way or the other. A number of experiments had been conducted to try and prove that these germs were there by accident, and were not absolutely necessary to the production of pus. One experiment he might quote was conducted by a Councilman and others. They took certain irritating chemical bodies—*e.g.*, croton oil mixed with olive oil—and enclosed them in a glass capsule, rendering everything aseptic. This was introduced under the skin of an animal and the wound kept as clean as possible, and when it had healed the capsule was broken and suppuration found to take place without the presence of these organisms. Other observers, however, take a diametrically opposite view, and the question must be left *sub judice*. He next showed an illustration of the tetanus microbe. For a number of years this disease was looked upon as non-specific; it was only comparatively recently one could say definitely what was the causal agent. It was discovered that this germ lived in garden mould, and tetanus was produced by inoculation with such mould. It was very peculiar in its method of living. In the first place it was what was known as an anærobic germ, *i.e.* one which grows better without free oxygen, and prefers an atmosphere of hydrogen. Another thing was, that it grew locally in the body; it was not to be found in the blood or lymph, but associated with other organisms in a wound. It was customary to consider tetanus as of two kinds. It would be described as heresy, he was afraid, if he was to say there was no such thing as idiopathic tetanus. There might be a wound on a mucous membrane, any wound which would admit the entrance of this germ would account for tetanus. The peculiar swelling at the end of the organism was due to the presence of a spore. The life history was very illustrative of that of germs in general. He pointed to the bacillary form, then to the growth of the spore at one end, characteristic of the "drumstick" bacillus, next to the bacillus leaving the spore, and to spore being set free and remaining quiescent with a tenacious hold upon life until access to the animal organism was gained, when fresh bacilli were formed. The next slide showed a germ which (said the Professor) would interest Mr. Thompson particulary. This was the bacillus anthracis, which laid claim to be the most popular of all organisms among bacteriologists. It was one of the first pathogenic germs isolated, and it was one of the easiest to cultivate as it grew almost anywhere and anyhow. One thing it insisted upon having was a good supply of oxygen. It could live without free oxygen, but it did not live at all well, so that it was an oxygen loving germ. The form in the lung substance (slide exhibited) was the form it assumed always in the animal body. It was the first stage of its life history. In the animal body it took upon itself a rod-shaped form, and when it multiplied it did so in the simplest manner possible, by cutting itself in two. Here he showed the bacilli in the blood; and in a number of cases they saw two attached to each other, caused simply by one germ dividing into two. This was its only method of reproduction in the animal body. The other phase of its life history was reproduction by spores, but a spore could only form when free oxygen was present, so that blood must be shed for this to take place. If the carcase was not opened then no spores could form, and as these spores can retain their vitality probably for years, it is necessary to prevent their formation if we wished to prevent subsequent spreading of the disease. An intermediate step in the life history was best illustrated in the pure cultivation. The bacilli, instead of being isolated, were arranged in filaments end to end in a beautiful and intricate pattern. As they would observe by the slide, the threads were composed of short segments, each segment being a bacillus. These threads were not to be obtained in the blood, because of the circulation of the latter, and if a filament did happen to form it was soon broken up. In artificial cultivation the bacilli were at rest and could adhere together. Another slide he showed exhibited the germ of diphtheria, which he brought before them because of the recent convulsion in the medical profession caused by the discovery of the good effects of anti-toxic serum. The same organism caused diphtheria both in human beings and in the lower animals. It was an example of a locally growing germ, for it is only found in the superficial strata of a diphtheritic patch. So that like the tetanus bacillus its toxic effects were produced by the ptomaine formed by its growth. Another slide he showed was interesting because it showed an organism causing croupous pneumonia, particularly in man. The germ was found in the lung of croupous patients, and unfortunately was almost always associated with some other germ. For some time it was thought to be an accidental circumstance that it should have been so found; but now it was pretty generally accepted as the causal agent of croupous pneumonia. A notable point was that it was not only found in croupous, but also in other forms of pneumonia. The bacillus was short, and two of them were generally attached together, and surrounded by a clear zone. His next slide was a specimen of the tubercle bacilli, situated in the lung substance. The nodule had undergone caseous changes in the centre and the bacilli were ranged in a ring. They simply retreated on the exhaustion of food supplies, and invaded fresh tissues.

Mr. Thompson: Like a fairy ring.

Professor Bradley said they were very similar. The bacillus of tuberculosis was isolated and cultivated by Koch in 1883, it having defied all methods for a number of years. It is one of the smallest of bacilli, its entire length not exceeding eight micro-millimetres and rarely attaining five micro-millimetres, or roughly the five thousandth part of an inch. Another reason why the full life history could not more easily be worked out was the difficulty experienced in growing it in artificial media. That difficulty had now been to some extent overcome. Another slide now shown was prepared from a pure cultivation, and showed more of the morphology of the bacillus. There were a number of stained parts and an intervening number of unstained parts, so that it was well said to be a "beaded" organism. Another feature was that it was sometimes bent. It required free oxygen for its growth, and it was to be found not only in the tubercular tissues of the body, but also in some of the

excretions and secretions. It is sometimes found in the milk, and this had great bearing upon the spread of tuberculosis. It has also been described as being present in the semen. If that was so it might throw some light upon the somewhat strange circumstance of very young calves having tubercular meningitis etc. One knew that the tubercular bacillus grew rather slowly, and how such a large number of nodules could grow in so short a time, supposing that the calves only get the bacilli after birth, seemed rather wonderful. This point, however, had still to be worked out, and they could say nothing definite as yet. There were only some one or two cases on record of bacilli found in semen, and these were human. He did not think that veterinary pathologists had worked on the subject at all, so they must hope for further light at a later date. He said he need not enter upon the discussion as to whether meat from a tuberculous animal was fit for human consumption as so much seemed to depend upon the individual case. The next diagram showed the bacillus of glanders, which closely resembled that of tuberculosis, but grew rather more rapidly, as glanders was a more acute disease. It was found in the local lesions of glanders and farcy, in nodules in the lung, etc. It did not seem to be distributed throughout the body. They had heard from the President an account of the effect of mallein. This was merely a glycerine extract of the bacillus mallei. To describe very roughly the mode of preparation, he would say a pure cultivation was made of the bacillus; then glycerine was added and the germs destroyed, and the whole thing filtered, the glycerine dissolving the ptomaines. Its diagnostic properties were invaluable. Tuberculin was a similar body, but its diagnostic properties were probably not quite so good. To suppose that tuberculin was a therapeutic agent, he added, was to fall into an error; its therapeutic value was probably *nil*. Another slide exhibited was of actinomyces which produced a common and important disease in cattle, etc. It had been playing hide and seek for a number of years with bacteriologists, who wished to classify it. One had been sure that it was a fungus, but to correctly and definitely classify it once and for all had been another matter. Showing a section of the liver of a human subject, he said the organism was seen in a number of distinct filaments. Transferred to artificial media they grew as filaments for some time, but when their food supply became deficient they developed into clubs. In the club shaped condition spores were probably formed and lay dormant until a suitable medium enabled them to again develope and form filaments. It was a matter of speculation how the organisms were disseminated. The organism had been discovered connected with herbage, and it was more than probable that it got into the mucous membrane through a wound or perhaps through a carious tooth. There was another means of gaining access by inhalation, but there were few authentic cases on record of this. A probable way was by ingestion. Professor Bradley concluded by saying he had endeavoured to avoid as much as possible placing before his audience doubtful points, and had desired to be as dogmatic as possible. The lecture was received with much applause.

The PRESIDENT asked Professor Bradley if he would object to members present putting questions to him or discussing the subject with him?

Professor BRADLEY said most certainly not.

Mr. THOMPSON said this had been the most interesting and instructive meeting of the Society since its formation. Matters had been brought before them by Prof. Bradley which they must not set lightly aside. He would like to have the lecture printed and the discussion left over to another meeting. He would be happy to pay part of Professor Bradley's expenses to their next meeting if he would come. The subjects of tuberculosis and anthrax were of vast importance and required a good deal of dipping into. There was a good deal said and done in the laboratory which did not find its way into the field or the byre. Cultivations in the laboratory might show this, that, and the other, but did they tally with what they found in the fold and on the farm? This was a matter which required going into, a connecting link was wanted. Were the specimens of bacilli they had seen to-day the cause of the disease or were they the effects of the disease? Only to day he read in the journal of the Royal Agricultural Society that Professor McFadyean said, in some cases of anthrax, if blood was removed a few hours before death bacilli was not to be found. What then was the disease if the bacilli were not there? Then again he said "They want free oxygen to grow." Where did they get the free oxygen from when the animal was dying, breathing hard with congested lungs, how was the blood to be oxydised?

Mr. LITTLE reminded Mr. Thompson of the spores.

Mr. THOMPSON: But it was said that the spores did not develope inside the body, both they and the bacilli must have oxygen to grow in. At the later stages the animal is breathing fast, the solid portions of the blood (the oxygen carriers) are sinking into the spleen and the watery portions into the cavities—how was the oxygen to get into the blood?

Mr. LITTLE seconded the motion for the postponement of the discussion to next meeting.

Mr. ARMSTRONG, supporting it, said that during his nine years secretaryship of the Society, he had never been so well entertained as he had been for three quarters of an hour that afternoon. The Professor had brought home to him, and probably to all, that there was much that they had lost sight of, and which was still of great value to them. He hoped Professor Bradley would see his way to come back and assist in the discussion, which, he thought, might be very well opened by Mr. Thompson. (Applause.)

The PRESIDENT said the subject had stirred him up, and he had decided to get what works he could on bacteriology and read it up.

The motion being carried, together with a vote of thanks to the Professor (on the motion of Mr. Lindsay, seconded by Mr. Hewson.)

Professor BRADLEY said nothing would give him greater pleasure than to come amongst them again. He felt quite touched by the way they had spoken of him. (Applause.)

A USEFUL INSTRUMENT.

Mr. ANDERSON showed an instrument, of his own invention, which he had used for twenty years in cases of difficult parturition, and with the greatest possible success. The object of the instrument was to dilate the os uteri in cases of constriction of the os, and was shaped like the bill of the pelican. Mr. Anderson said he had found it to answer splendidly, the instrument was about 2ft. 6in. long and very strong. He also exhibited a large cystic calculus which he had extracted from the bladder of a mare by means of a long spoon, which he bent for the purpose, after all other efforts on the part both of himself and a medical man had failed.

The members expressed their thanks to Mr. Anderson.

On the motion of Mr. Armstrong a vote of thanks was given to the President for his services in the chair.

The members then adjourned to another room, where the annual dinner was held, when the usual loyal and other toasts were given and replied to, and a genial social evening was spent.

J. W. HEWSON, *Hon. Sec.*

ELECTION ADDRESS.

To the Fellows and Members of
The Royal College of Veterinary Surgeons, 1895.

DEAR SIR,

Having been unanimously requested by the Lancashire Veterinary Medical Association, to allow myself to be nominated as a candidate for election to Council, I have after careful consideration consented, and in seeking your vote and influence deem it necessary that I should place before you my views on the more important matters now before the profession.

The higher preliminary, extended curriculum, and alterations in the professional examinations are subjects the wisdom of which can only be gauged by future results.

I am very pleased to find our Council so energetically voicing the profession as to its position and treatment by the Board of Agriculture, and should I be elected, this policy will receive my strenous support.

With regard to the recent election of examiners, as a whole it may be considered satisfactory, still exceptions might be taken, and improvements from a veterinary practitioners stand-point have been obtained by the appointment of an Irish representative to one of the tables, and also a member of our profession to the pathology table as a colleague of a medical specialist.

In the event of an Irish teaching school becoming an accomplished fact, it is sincerely to be hoped that there will continue to be as now, but one diploma granting-body, viz., the Royal College of Veterinary Surgeons.

As the general practitioners are in the best position to judge of the requirements of the future members of the profession, it is essential that they be adequately represented on the Council, to which end I solicit your vote and assistance.

I remain, yours faithfully,
SAMUEL LOCKE.

Grosvenor St., Oxford Street,
Manchester.

EXTRACTS AND NOTES.

PARLIAMENTARY.

THE PROPOSED VETERINARY COLLEGE FOR IRELAND.

In the House of Commons on Thursday, May 2nd, in answer to Mr. JOHNSTON,

Mr. J. MORLEY said,—As already stated in reply to similar questions, it is the intention of the Government to bring in a Bill to make certain provision in connexion with the proposed Veterinary College for Ireland, an institution which, in the opinion of the Government, will be of considerable educational advantage. The provision will be not for the endowment of the College, as is suggested in the question of the hon member, but merely a grant of a lump sum in aid towards the acquisition of buildings and fittings. The grant will not reduce the annual sum paid to the Intermediate Education Board as their share of the local taxation duties, but will be withdrawn from an accumulation in their hands in respect of their share in these duties not expended by them in former years.

THE CANADIAN CATTLE TRADE.

SIR J. KINLOCK asked the President of the Board of Agriculture whether he had yet considered the recent communication from the Canadian Government on the subject of the cattle trade.

Dr. FARQUHARSON at the same time asked whether there was any chance of the Canadian cattle traffic being restored this year.

Mr. GARDNER.—In answer to the supplemetary questionf I have to point out that it is the duty of the officers of the Department to report from time to time whether it is safe to remove the embargo on the admission of store cattle from Canada. I have fully considered the communication to which my hon. friend refers, but it does not seem to me to do much more than restate the views previously expressed by the Dominion authorities. Moreover, since it was written, the Belgian Government have also discovered cases of pleuro-pneumonia amongst cattle brought from Canada—a fact which, in view of the admitted eminence and experience of the Belgian veterinary experts, affords an important corroboration of the opinion of my own advisers. I am endeavouring to obtain through the Foreign Office further information with regard to the Belgian cases, and on its receipt I shall be able to determine whether any detailed reply on my part is necessary beyond the formal one already sent. Later on it may be desirable that further papers should be laid on the table, but it would, I think, be inconvenient that I should do so at the present stage of the correspondence.

ARMY FORAGE AND MEAT SUPPLIES.

In the House of Commons, on Tuesday May 7,

Sir A. ACLAND-HOOD asked the Financial Secretary to the War Office whether he could state how much of the forage supplied for the use of the Woolwich garrison was British or Irish, and how much foreign or colonial.

Mr. WOODALL:—I cannot say. The forage supplied must pass the prescribed standard; but no question is raised as to the source from which it comes. This was fully explained to the hon. membsr in a reply made on December 27, 1893.

Sir A. ACLAND-HOOD:—Is the hon. member aware that not one single pound of British or Irish forage is now being supplied for the use of the troops at Woolwich? (Hear, hear.)

Mr. WOODALL:—No; I am not aware that that is the fact; nor do I think it probable. All I know is that the forage has passed inspection and that it is therefore suited to the pupose: for which we require it.

Sir A. ACLAND HOOD asked the hon. member whether he could state how much of the meat supplied for the London garrison was British or Irish, and how much foreign or colonial.

Mr. WOODALL.—The contractor is required to deliver at least 40 per cent. of the meat from home killed supplies. The actual quantity supplied from home and foreign sources respectively cannot be stated.

Mr. AUSTEN CHAMBERLAIN.—What is the reason for the distinction between the cases of forage and of meat supply? Why, when 40 per cent. of the meat is required to be supplied from home sources, is there no analogous restriction in connection with the supply of forage? (Hear, hear.)

Mr. WOODALL.—The restriction has been found inconvenient in practice. The hon. member knows that the year before last, when he suffered such great inconvenience from the want of hay, the supplies that came from Canada were particularly welcome and proved satisfactory.

Mr. JAMES LOWTHER.—Is the House to understand that this regulation respecting the proportions of the foreign and British meat supplies applies only to meat and that as to forage there is nothing to prevent 90 per cent. of it from being foreign? (Hear, hear.)

Mr. WOODALL.—Yes. (Cries of "Oh.")

THE ROYAL (DICK) VETERINARY COLLEGE.

At the meeting of the Edinburgh Town Council,

The Chairman moved that the Council recommend approval of the arrangements for carrying on the work of the Royal (Dick) Veterinary College, and the appointment of Professor Dewar as Principal of the College, and recommit to the Lord Provost's Committee to carry out the arrangements.

Sir James Russell seconded the motion.

Mr. Cranston drew the attention of the Council to an article which had appeared in a magazine which, he said, contained an attack upon the Town Council as trustees of the Dick College. That magazine was edited within the College, and a more uncalled for, more ungentlemanly, and more blackguardly piece of literature was never produced by any man. That language was strong, but it was not stronger than the article in the magazine, which stigmatised the Council as being engaged in hole-and-corner work, and he for one would not permit Dr. Aitken or any other professor to write in such a manner without giving expression to his own opinion. The Dick Trustees should convey to these gentlemen that what the Council did was in the interest of the city, and if it was found that the action was not in the interests of the city it was not because any hole and corner scheme existed. He hoped that the trustees would convey to these gentlemen the distinct information that the Council were not parties to such a scheme.

Mr. Hay said he sympathised with what had been said by Mr. Cranston. Everything had been done for the good of the College, and he detested the insinuation that had been cast upon himself and his colleagues.

The Chairman said that in the Lord Provost they had a man who had considered the subject to the best of his ability, who was convinced of the need of reform of the institution, and who would not be driven aside. Sir James Russell had also given the subject earnest consideration, and they might trust these two gentlemen to see that the Dick Trust would be put on a new footing. If the Professors were unworkable, perhaps others would be got.

The subject was then recommitted with powers.—*The Evening Dispatch.*

ARMY VETERINARY DEPARTMENT.

FIELD SERVICE.

The following veterinary officers are serving with the Chitral Expedition:—Vet.-Colonel R. Poyser, Inspecting Veterinary Officer; Vet.-Capt. F. Raymond, Vet.-Lieuts. A. C. Newsom, H. B. Knight, C. B. Freeman, H. T. Sawyer, and G. M. Williams.

Vet.-Capt. E. Taylor and Vet.-Lieut. C. Rose, are on Field Service in Waziristan.

CHANGES OF STATION.

Vet.-Capt. G. K. Walker has been placed in veteriarp charge at the Camp at Okehampton during the Royal Artillery gun practice.

Vet.-Capt. A. J. Haslam is transferred to Dublin from Newbridge, Vet.-Lieut. J. H. Jackson from Ballincollig to Newbridge, for duty with 3rd Hussars, Vet.-Lieut. F. B. Drage to Ballincollig, for duty with 10th Hussars.

THE A.V.D. AND THE CHITRAL EXPEDITION.

Veterinary-Captain Raymond proceeded with the transport of the first brigade, Vet.-Lieut. Williams with that of the second, and Vet. Lieut. Newsom with that of the third brigade. No. 2 Field Veterinary Hospital, for the line of communications has been under Vet.-Lieut. Freeman. Vet.-Lieut. Knight, with a complete staff, took charge at Nowshera, where the general veterinary hospital and base veterinary store depôt were established under him. A correspondent writes: "The condition of the Government mule transport is magnificent to start with; that of the Jeypore pony transport good. All the ponies are entire, and almost all arrived with leather nosebags on their heads to prevent worrying. Some have been badly injured. The ponies, over 900, are a fine lot. The Gwalior transport ponies, over 400, might be in much better order; they are poor. Improved stable management should remedy this defect for future campaigns. The I.V.O. is specially strict about rejecting baggage animals of immature age, and the weakly, as well as those contagiously affected. The veterinary department has its hands full, but one and all are working with a will, especially to obviate and check infectious and contagious diseases. The I.V.O. having satisfactorily arranged all at the base, and in advance, leaves for the front at an early date to join the divisional staff at Jalala. In India as at home, there is no department which is worked more quietly and efficiently than the veterinary. It rebounds greatly to the credit of our able director-general and his staff that this should be so, and we trust it may be remembered when at some future date a question will arise which is ripe for official consideration, viz., the utter inadequacy of the present rate of pensions."—*Army and Navy Gazette.*

OBITUARY.

SIR GEORGE BUCHANAN, M.D. F.R.S.

We regret to announce the death, on the 5th inst., of Sir George Buchanan, M.D., F.R.S., formerly medical officer to the Local Government Board.

Sir George graduated as a doctor of medicine from the University of London in 1856, and was one of the first medical officers of health in London, being appointed to St. Giles's in 1856. In that capacity he originated methods of inquiry in sanitary matters not before attempted, working at the relation of overcrowding and other insanitary conditions of disease, at the prevention of smallpox and cholera, and originating a system of collecting statistical information of the public health of the district. The results of his work in St. Giles's were soon seen and appreciated. He was also appointed one of the physicians to the London Fever Hospital, in which position he further became known as an accurate and zealous investigator of scientific problems. In 1861 he was asked by the Privy Council to assist in the elucidation of various sanitary questions of pressing public importance. He conducted, in that and subsequent years, a systematic inquiry into the working of the Vaccination Acts, an inquiry which had for one of its results the amendment of these Acts by that of 1867.

In 1869 Dr. Buchanan was permanently appointed as a medical inspector under the Privy Council; in 1871 he was transferred to the Local Government Board as assistant medical officer; and in 1879 he succeeded to the headship of his department. For the three and-twenty years covered by these dates, down to his retirement in 1892, he was continuously identified with everything

that was excellent in the sanitary administration of the country.

In 1892, on his retirement, Dr. Buchanan received the barren honour of knighthood; but the Lords of the Treasury, or their subordinates, refused to consider his almost continuous services from 1861 to 1869 as "official" work, or to reckon the eight years during which they were rendered as time counting towards the increase of the scanty pension which was the sole reward of his services. In his own profession he was held in high esteem. Besides the Fellowship of the Royal Society, he was LL.D. of Edinburgh, a Fellow of the University of London, a Fellow of the Royal College of Physicians, and a Member of numerous learned societies at home and abroad, having filled the office of president in many of the former. He left among his official colleagues a lasting impression of deep respect and affection. Never self seeking, he always sought to promote the welfare of those working with and under him; and the news of the unexpected death will come as a painful surprise to many.—*The Times.*

AN INSTRUMENT FOR HOOF SECTION.

A new instrument has been brought out by Messrs. Arnold and Son, for the purpose of facilitating the cutting through of the wall of the foot in Smith's operation. It is known as a hoof plane, and it cuts a wide groove from the coronet to ground surface and as deep as the white line in the course of a minute or so.

The instrument is used in the following manner:—The position of the lines of incision having been marked on the wall with a saw, the plane is applied cutting from the coronet downwards; each cut should bring out a large shaving of horn the length of the wall. As the deeper parts of the wall are reached the instrument is used with less pressure.

A difficulty always exists in cutting through the piece of wall under the coronary secreting substance; this is said to be greatly facilitated by the hoof plane which is used in short strokes and worked *upwards* against the piece of horn, which it entirely cuts or scrapes away in a few well applied strokes.

CORRESPONDENCE.

EXAMINATION FEES.

SIR,—Would any of your readers kindly inform me what are the fees for the examinations of the Royal College of Veterinary Surgeons for students admitted to a recognised College *before January 30th*, 1893, that is to say students under the *three years course*. In Scotland the fees that have been charged are *four guineas*, and yet in the Register of this year (which, by the way, is so strictly adhered to by the Scottish Secretary) on page 85 under the heading of "The Third Schedule," article 2, reads thus:—"An examination fee of *five* guineas shall be paid for each examination."

If this be correct, the Royal College have been the losers of a guinea per student under the old system. On the other hand they were keen enough to charge the four years students five pounds.

An explanation of this will greatly oblige, yours truly,

"A WELL-WISHER."

"REGISTERED"—AND TRAINED.

SIR,

I enclose for your information a letter which appeared in *The Morning Post* of May 4th, under the heading "Registration of Midwives" in which an allusion to the Veterinary profession is made. I do so because I consider it requires some contradiction. In the letter is stated that "Veterinary Surgeons have to be registered." This, in my opinion, is overlooking the fact that the members of the veterinary profession have to obtain the Diploma of the R.C.V.S. which admits them to the profession, as the Diploma in Law, Medicine, or degree in any other scientific calling; the term "Registered" having reference only to the few who were practising the art before the passing of the Veterinary Surgeon's Act. I think the statement is ignoring our professional status, as it compares our profession with a registered number of midwives who would have to qualify in a small way in that subject only without any scientific or professional training or degree in that special branch of surgery. I need not point out that veterinary surgeons have to be qualified and Members of the R.C.V.S. before they are allowed to practice, which is a very different matter from being "registered." Midwives may be registered if the authorities enforce the order, but veterinary surgeons must be members of the profession before they practice. The statement is misleading to the public, and for this reason I call your attention to the matter, which is ever directed to the welfare and progress of our profession.

"VIGILANT."

THE REGISTRATION OF MIDWIVES.

TO THE EDITOR OF THE MORNING POST.

SIR,—We desire through the medium of your journal to make known to the public, and especially to the women of England, the great need for legistation in the matter of midwives. Any woman, however incapable and absolutely untrained, can at present call herself a midwife, and have a plate with the word "midwife" upon it on her door, and no one can prevent her. The amount of misery and suffering caused by this untrained attendance is inconceivable; for it is not usually realised how very general amongst women of the poorer classes is the custom of employing midwives, in some parts of England even to the extent of 90 per cent. and over.

Statistics show that among working women at least seven out of 10 births take place without a medical man. An association has been formed for some time with the object of inducing Parliament to pass a Bill to make registration of midwives compulsory. Veterinary surgeons have to be registered; surely women have as great a claim on Parliament for protection as horses and cows. A Select Committee of the House of Committee sat and took evidences as to the practice and result of widwifery by midwives in Great Britain and reported that legislation is imperative. We have the approval and co-operation of a large number of medical men, who all agree that registration and training of midwives are most necessary, and should be controlled by Act of Parliament. It is in no sense intended to create a new class of practitioners, but we trust it will be the means by making compulsory a short but thorough training for midwives in the management of normal cases (the only cases that a trained and registered midwife is entitled to undertake), of protecting our poorer sisters from becoming the victims of ignorance.

All information will be gladly given by the hon. secretary, Compulsory Registration of Midwives.—Yours, etc.

G. RATHBONE. ELINOR PAUL.
M. SCHWANN. AMABEL BRUCE.

95, Philbeach Gardens, May 3.